IN THE CLAIMS:

Claims 1-13. (Cancelled).

Claim 14. (Currently Amended) A method for detecting small periodic wave patterns in surfaces, comprising:

illuminating [[the]] a surface using a primary beam of monochromatic coherent light; ~~which is directed~~

directing said primary beam onto the ~~workpiece~~ surface at a large angle of incidence ~~with respect to the surface~~ relative to a normal to the surface of the workpiece, and approximately at right angles to expected periodic wave patterns;

~~detecting~~ generating a diffraction image of the periodic wave patterns produced in [[the]] secondary light returned by the surface; and

evaluating an intensity and spacial distribution of neighboring intensity maxima in the diffraction image; wherein,

for separate determination of the wave pattern of a ground surface, in which the wave pattern has finer, steeply indented stochastic ground structures superimposed on it, the ground structures are shadowed by providing

an approximately grazing incidence of the primary light beam onto the workpiece surface at a constant angle of incidence within an angular range of approximately 83±2°, whereby a diffraction image solely representing the wave patterns is produced because of an isolated illumination of the wave patterns thereby achieved, with primary light incident on their sides facing towards and away from the light and on respective wave crests.

Claim 15. (Previously Presented) The method according to Claim 14, further comprising:

collecting the secondary light beam on a matt panel; and

visually evaluating its intensity distribution with respect to the occurrence of intensity maxima.

Claim 16. (Previously Presented) The method according to Claim 14, further comprising:

measuring an intensity distribution of the secondary light as a function of position over an image area of the diffraction image; and

evaluating the measurements with respect to occurrence of intensity maxima.

Claim 17. (Previously Presented) The method according to Claim 16, further comprising:

subjecting the intensity distribution of the secondary light to an autocorrelation; and

evaluating the autocorrelation function obtained therefrom.

Claim 18. (Previously Presented) The method according to Claim 14, wherein:

spacing of neighboring intensity maxima is determined; and

period of the wave pattern is deduced therefrom.

Claim 19. (Previously Presented) The method according to Claim 18, wherein:

intensity values of neighboring intensity maxima are determined; and

depth of wave troughs between wave crests is deduced therefrom and from the period of the wave pattern.

Claim 20: (Previously Presented) A device for detecting small periodic wave patterns in the surface of a workpiece, said device comprising a meter which is adapted to be placed in a defined way on the workpiece surface to be analyzed, with a primary-light source which directs a primary light beam of monochromatic, coherent light beam onto the workpiece surface in a predetermined direction, and a secondary-light display which collects a scattered-light cone returned by the workpiece surface in the meter, wherein:

at least in a region where the primary-light beam emerges from the meter, it is directed in such a way that, when the meter is placed on the workpiece, it strikes the workpiece surface to be analyzed at an angle in the range of approximately 83±2°;

the meter is designed so that, after placing on the workpiece surface, it can be aligned with respect to the primary beam at least approximately at right angles to any expected periodic wave patterns of the workpiece surface;

the secondary-light display collects the scattered-light cone without imaging optics, as a diffraction image of a wave pattern; and

an intensity distribution in the diffraction image is evaluated.

Claim 21. (Previously Presented) The device according to Claim 20, wherein:

in an area to be applied to the workpiece surface, the device has an exit window;

deflecting elements for the primary beam and the secondary beam are arranged in a lateral periphery of the exit window; and

the deflecting elements deflect the light beams such that a beam component of the primary beam located in front of the primary-beam deviating element and a beam component of the secondary beam located behind the secondary-beam deviating element are aligned approximately at right angles to the workpiece surface.

Claim 22. (Previously Presented) The device according to Claim 21, wherein the optical deflecting elements are arranged in such a way that the beam component of the primary beam located in front of the primary-beam deviating element and the beam component of the secondary beam located behind the secondary-beam deviating element cross each other.

Claim 23. (Previously Presented) The device according to Claim 20, wherein the secondary-light display comprises a matt panel which makes the intensity distribution of the diffraction image visually perceptible.

Claim 24. (Previously Presented) The device according to Claim 20, wherein the secondary-light display comprises one of a linear and a two-dimensional matrix of a plurality of photoreceptive sensors which measure the intensity distribution of the diffraction image.

Claim 25. (Previously Presented) The device according to Claim 20, wherein

both a matt panel, which makes the intensity distribution of the diffraction image visually perceptible, and one of a linear and a two-dimensional matrix of a plurality of photoreceptive sensors which measures an intensity distribution of the diffraction image, are arranged in the secondary-light display; and

the secondary-beam path is accessible via one of a beam splitter and a tilting mirror.

Claim 26. (Previously Presented) The device according to Claim 25, further comprising a digitally operating camera which is fitted to the meter and positioned to record the intensity distribution of the diffraction image of the secondary-beam path.